

California Climate Policy Landscape

Shankar B. Prasad, M.B.B.S
**Deputy Secretary for Science &
Environmental Justice**



California Environmental Protection Agency

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Executive Order on Climate Change

“...the debate is over. We know the science. We see the threat. And we know the time for action is now.” June 1 2005, Governor Schwarzenegger



This proclamation reflects California's leadership of environmental protection in the nation and the world.

Executive Order Established Statewide GHG Targets

By 2010, Reduce to 2000 Emission Levels*

By 2020, Reduce to 1990 Emission Levels**

By 2050, Reduce to 80% Below 1990 Levels

*** Equals ~60 Million Tons Emission
Reductions, 11% Below BAU**

**** Equals ~170 Million Tons Emission
Reductions, 25% Below BAU**

Climate Action Team

- **CalEPA Secretary Chairs the Team**
- **BT&H, CDFA, Resources, PUC, ARB, CIWMB, and CEC are Represented**
- **The CAT Report's Key Recommendations**
 - ◆ **Mandatory Reporting**
 - ◆ **Biofuels**
 - ◆ **Electric Sector Policies**
 - **Carbon & Municipal Utility Policy**
 - ◆ **Funding Mechanisms**
 - ◆ **Public Education Campaign**
 - ◆ **Local Government Protocol**

Scenario Analysis

- **Three Scenarios Evaluated**
 - ◆ High, Medium and Low Concentration of Pollutants in the Atmosphere
- **Impacts Considered**
 - ◆ Forestry
 - ◆ Public Health
 - ◆ Water
 - ◆ Agriculture
 - ◆ Sea Level
 - ◆ Electricity Supply

Projected Impacts at End of Century

Emissions Scenarios

(End of Century
Atmospheric CO₂ Level)

High Emissions
A1fi
(1000 ppm)

**Medium-High
Emissions**
A2
(850 ppm)

**Lower
Emissions**
B1
(550 ppm)

90% loss in Sierra snow pack
20-30 inches of sea level rise
3-4 times as many heat wave days in major urban centers
XXS heat-related deaths in 5 cities¹
2.5 times the number critically dry years²
20% increase in electricity demand
Forest yields not evaluated for this scenario
Fire risk not evaluated for this scenario

70- 80% loss in Sierra snow pack
12-20 inches of sea level rise
1-2 times as many heatwave days in major urban centers
XXX heat-related deaths in 5 cities¹
75-85% increase in days meteorologically conducive to ozone³
1.5-2.5 times the number critically dry years²
11% increase in electricity demand
31% decrease in forest yields (pine)
55% increase in the expected risk of large fires

30-60 % loss in Sierra snow pack
4-12 inches of sea level rise
1-2 times as many heat wave days in major urban centers
300-400 heat-related deaths in 5 cities¹
25-35% increase in days meteorologically conducive to ozone³
Up to 1-2 times the number critically dry years²
3-6% increase in electricity demand
7-14% decrease in forest yields (pine)
10-35% increase in the risk of large fires

**Statewide
Temperature Rise
2070 - 2099**

8-10.4 °F

5.5-7.9 °F

3.0-5.4 °F

¹ Los Angeles, San Bernardino, San Francisco, Sacramento, and Fresno. ² Measures for the San Joaquin Valley and Sacramento basins.
³For high ozone locations in Los Angeles (Riverside) and the San Joaquin Valley (Visalia).

Key Findings of Scenario Analysis

- **Climate Change Will Affect Every Sector Of The Economy**
- **Climate Change Will Have Compounding Impacts**
- **Extreme Events Will Increase: Heat Waves, Wildfires, Flooding, And Conditions Conducive To Air Pollution Formation**
- **Lower Climate Change Emissions Decreases The Probability Of More Dramatic Climatic Changes**

Estimated Climate Change Impacts (California)

| Category | Estimated Costs in \$ Billions |
|---|--------------------------------|
| Extra Electricity use | \$1 B / yr. by 2020 |
| Levee & Water Supply | \$10 B / yr. over 50 years |
| Public Health, Forest, & Other Natural Resources | >\$10 B / yr. over 50 years |
| Agriculture | \$30-50 B over 20-50 years |
| Tourism | \$75 B over 20-50 years |

“Today, I am happy to announce we have reached a historic agreement on legislation to combat global warming.

We can now move forward with developing a market-based system that makes California a world leader in the effort to reduce carbon emissions.

The success of our system will be an example for other states and nations to follow as the fight against climate change continues.

AB 32 strengthens our economy, cleans our environment and once again, establishes California as the leader in environmental protection.”

--Gov. Schwarzenegger (08/30/2006)

The Global Warming Act of 2006 (AB 32)

- **Establishes first-in-the-world regulatory and market-based program to achieve real, quantifiable, cost-effective GHG reductions**
- **Creates a statewide GHG emission limit to reduce emissions to 1990 levels by 2020**
- **Designates ARB as state agency charged with monitoring and regulating sources of GHG emissions**

AB 32 Development

- Introduced by Pavley in 12/06/04 w/ 3 coauthors
- Passed 08/31/06, w/ Nunez & Pavley as authors and 49 coauthors
- ARB is lead, working in consultation with PUC and CEC on all elements that pertain to energy
- Permits multi-sector market-based compliance mechanisms
- Directs ARB to consult with other states, federal government and other nations on program design
- Ensures economic, technical, scientific & EJ consideration
- Requires community involvement

AB 32 Timeline

- **Adopt a list of feasible action measures by 07/01/07 and implement them before 01/01/10**
- **Establish by 01/01/08 a statewide GHG emissions cap for 2020 based on 1990 emissions**
- **Adopt mandatory reporting rules for sources of GHGs by 01/01/08**
- **Adopt by 01/01/09 an emission reduction plan using market & alternative compliance mechanisms, and adopt implementing regulations by 01/01/11**
- **Convene advisory committees on Economics, Technology and EJ**
- **Ensure broad public participation in all actions**

Regulation & Compliance

- **Maximum feasible and cost effective reductions from sources and categories of sources**
- **Multi-sector, market-based declining annual aggregate emission limits**
- **Market-based compliance mechanisms**
- **Credits to entities for early compliance in reducing emissions**
- **Authorizes imposing fees to sustain the program**
- **Penalties for violators**

Market-Based Policy Benefits

- Provides flexibility for compliance
- Promotes innovative control technology
- Incentivizes use of renewable energy
- Induces investment in energy efficiency
- Improves overall environmental sustainability
- Frees up resources for other economic activities

Special Considerations

Ensure GHG Regulatory Activities

- ◆ Do not interfere with efforts to achieve & maintain Federal and State AAQs and to reduce toxics
- ◆ Consider cost and overall societal benefits
- ◆ Minimize administrative burden in implementation & compliance
- ◆ Minimize leakage (e.g. sources move out of state)
- ◆ Prioritize sources based on GHG contributions
- ◆ Do not disproportionately impact low-income communities

Major Sources of GHG Emissions

- **Transportation Related Activities**

- ◆ Auto and trucks
- ◆ Ports & rail yards ground support

- **Energy Production Facilities**

- ◆ Refineries & power plants

- **Construction Material Production**

- ◆ Cement kilns

Estimated Economic Impacts in 2020 with Mitigation Measures

| | In 2004 Actual ¹ | In 2020 Without Strategies ² | In 2020 With Strategies ³ | Impact of Strategies in 2020 | % Difference in 2020 |
|---|--------------------------------|---|--|------------------------------------|----------------------------|
| Income (\$ Billions of 2005 dollars) | 1,317 | 2,128 | 2,132 | 4 | 0.19 |
| Jobs (Thousands) | 16,460 | 20,704 | 20,787 | 83 | 0.40 |

¹Department of Finance, provided here for perspective, to indicate how much the economy is expected to grow by 2020.

²E-DRAM analysis of Business-As-Usual in 2020.

³E-DRAM analysis in 2020 with the Climate Action Team strategies.

Other Complementary Policies

- **Million Solar Homes (AB 1 passed 2006)**
- **Hydrogen Highway Initiative**
- **Landfill Gas Conversion**
- **Biofuels Development**
- **International Collaboration**